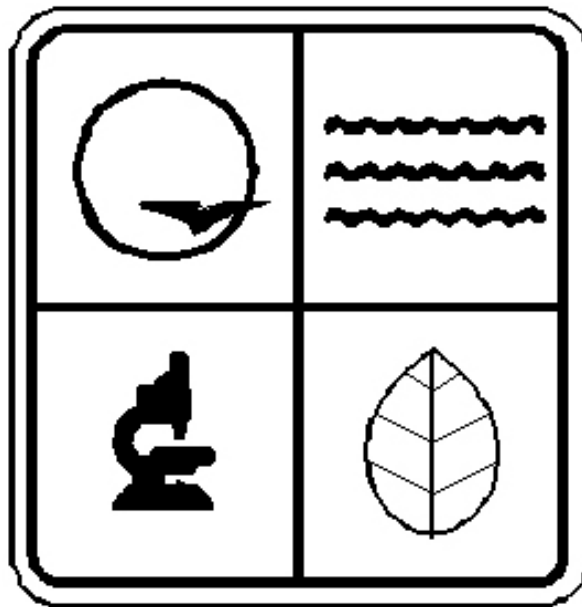# Cedar City Baseline

EDM Calibration Baseline
Callaway County, Missouri

Established by
Land Survey Program
Missouri Department of Natural
Resources
And
Missouri Department of Highway &
Transportation

1987

CEDAR CITY EDM CALIBRATION BASELINE

The baseline is located north of Jefferson City in Callaway County. It is between Highway 63 and the west outer road.

To reach the baseline from the intersection of Highway 63 and Route W, on the north side of the Missouri River bridge, go northwest along the outer road approximately one mile to the access to Highway 63 and the 0 Station.

The baseline consists of six points numbered EDM 1 through EDM 6. The monuments are copperweld rods in concrete. The mark is a center-punched hole in the copperweld rod.

For EDM baseline calibration, only points one, two, three, and six are used.

Points four and five need not be occupied or measured to. Point one is the 0 meter station and is located about 60 feet South of the paved crossover in the grass median between the southbound lane of Highway 63 and the West service road, two is at 159 meters, three is at 459 meters, and six is at 1099 meters.

The baseline station elevations are as follows:
0 meter - 168.03 m
159 meter - 167.89m
459 meter - 167.39 m
1099 meter - 167.19m
Elevation information by MO Highway and Transportation Dept.

Electronic Distance Measuring (EDM) Calibration Baselines in Missouri

The Missouri Department of Natural Resources has established 12 Electronic Distance Measuring (EDM) calibration baselines in Missouri. Despite the fact that modern equipment is highly sophisticated and provides a direct readout of the distance to the nearest hundredth of a foot or millimeter at push of a button, it can also give an erroneous reading. The EDM baseline will allow the operator to verify that the instrument is in calibration and the instrument is being operated properly.

Each EDM baseline consist of 4 monumented stations. The monuments are spaced nominally at 0 meters, 150 meters, 400 meters and 1100 to 1375 meters. Each station will be occupied with the EDM equipment and a measurement made to the 3 other stations. This will give a total of 12 measurements. The results will determine the scale factor and a system constant for the EDM instrument.

The EDM operator should use the same procedures as in every day fieldwork. This will not only confirm that the equipment is in good working order, but will ensure the complete method of collecting data. The measuring system includes not only the instrument but the tripods, tribrachs, prisms, thermometers and barometers/altimeters as well.

WHEN TO CALIBRATE YOUR INSTRUMENT?
 Upon receipt of a new instrument
 Immediately after each servicing
 Anytime the operator feels the instrument is not working properly
 Before and after DNR or other government agency contracts

BEFORE RUNNING THE BASELINE PERFORM THE FOLLOWING
 Check and adjust optical plummets, bulls-eye bubbles and plumbing poles.
 Check thermometers and barometers/altimeters
 Make sure all tripods are rigid and stable
 Clean prisms
 Fully charge all batteries
 Have an EDM Calibration Report form for the baseline you are running.

When filling out the EDM Calibration Report form, fill in all lines that apply and add addition information if needed.
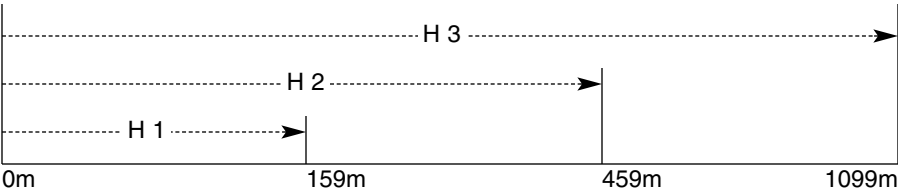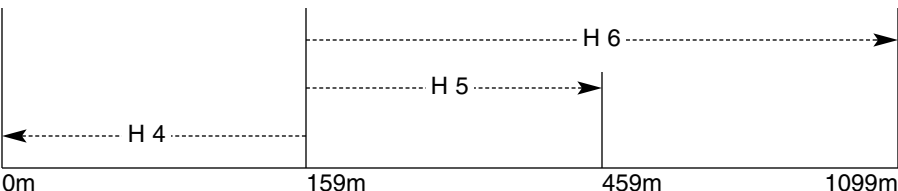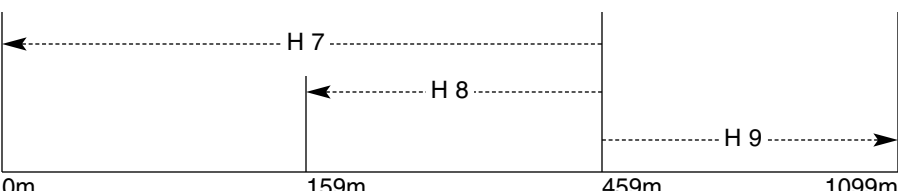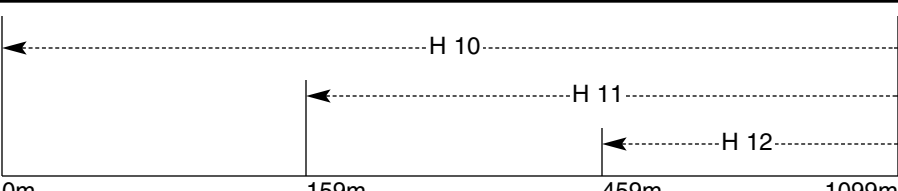
IMPORTANT NOTE

Before each measurement, enter the temperature and station pressure or absolute pressure into the instrument. The barometric pressure given over the radio and at airports has been reduced to sea level. DO NOT ENTER SEA LEVEL PRESSURE INTO THE EDM. One method used to find station pressure or absolute pressure is by elevation. The barometric pressure is reduced 0.1 inches of mercury for every 90 feet of elevation. So, to correct the sea level pressure obtained from the radio or airport, pick an average elevation for your area and divide by 90. Example: if the elevation is 1000 feet, dividing 1000 by 90 equals 11.11. Therefore, subtract 1.11 inches from the sea level pressure to obtain station pressure or absolute pressure.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION
EDM CALIBRATION REPORT – CEDAR CITY EDM BASELINE (HORIZONTAL)

DATE	COMPANY	REFLECTOR SETUP
		☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

NOTE: ALL DISTANCES SUBMITTED SHALL BE HORIZONTAL.

E.D.M. AT 0m

0m   159m   459m   1099m

H 1 =	H 2 =	H 3 =	TEMP
H 1 = (159.3363m)	H 2 = (459.1739m)	H 3 = (1099.9332m)	*PRESS

E.D.M. AT 159m

0m   159m   459m   1099m

H 4 =	H 5 =	H 6 =	TEMP
H 4 = (159.3363m)	H 5 = (299.8376m)	H 6 = (940.5969m)	*PRESS

E.D.M. AT 459m

0m   159m   459m   1099m

H 7 =	H 8 =	H 9 =	TEMP
H 7 = (459.1739m)	H 8 = (299.8376m)	H 9 = (640.7593m)	*PRESS

E.D.M. AT 1099m

0m   159m   459m   1099m

H 7 =	H 8 =	H 9 =	TEMP
H 7 = (1099.9332m)	H 8 = (940.5969m)	H 9 = (640.7593m)	*PRESS

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
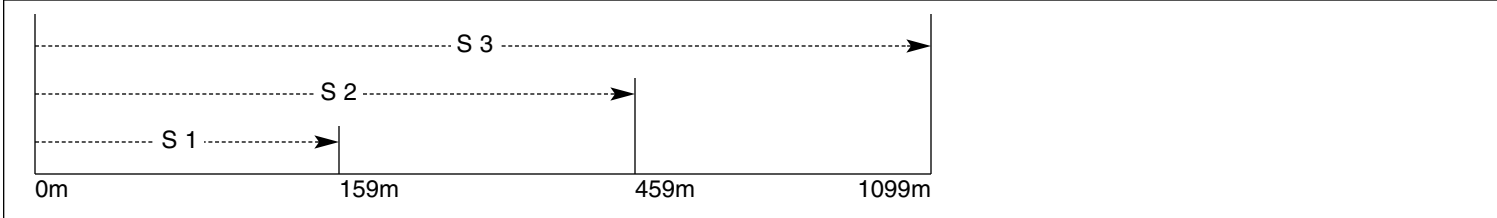GEOLOGICAL SURVEY AND RESOURCE ASSESSMENT DIVISION

EDM CALIBRATION REPORT – CEDAR CITY EDM BASELINE (SLOPE)

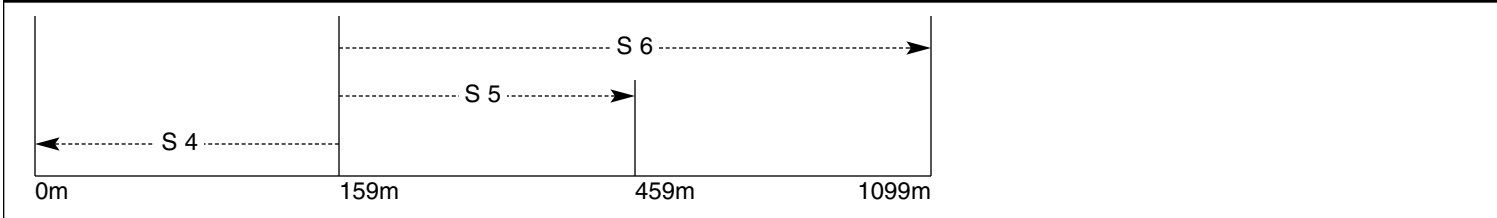| DATE	COMPANY	REFLECTOR SETUP ☐ Tripod with tribrach ☐ Prism pole ☐ Bipod pole

INSTRUMENT TYPE AND MODEL

NOTE: ALL DISTANCES SUBMITTED SHALL BE SLOPE.
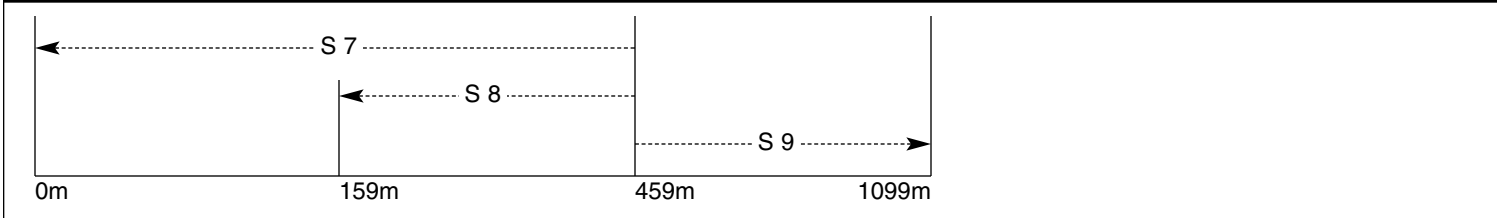
E.D.M. AT 0m

0m   159m   459m   1099m

HI =	S 1 =	S 2 =	S 3 =	TEMP
	H 0 =	H 0 =	H 0 =	*PRESS

E.D.M. AT 159m

0m   159m   459m   1099m

S 4 =	HI =	S 5 =	S 6 =	TEMP
H 0 =		H 0 =	H 0 =	*PRESS

E.D.M. AT 459m

0m   159m   459m   1099m

S 7 =	S 8 =	HI =	S 9 =	TEMP
H 0 =	H 0 =		H 0 =	*PRESS

E.D.M. AT 1099m
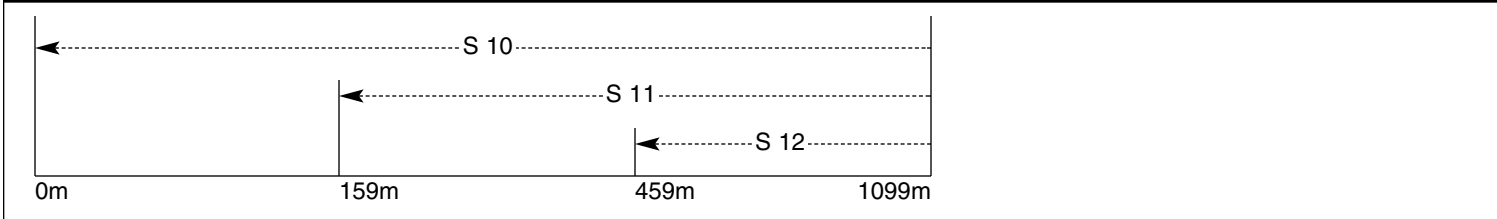
0m   159m   459m   1099m

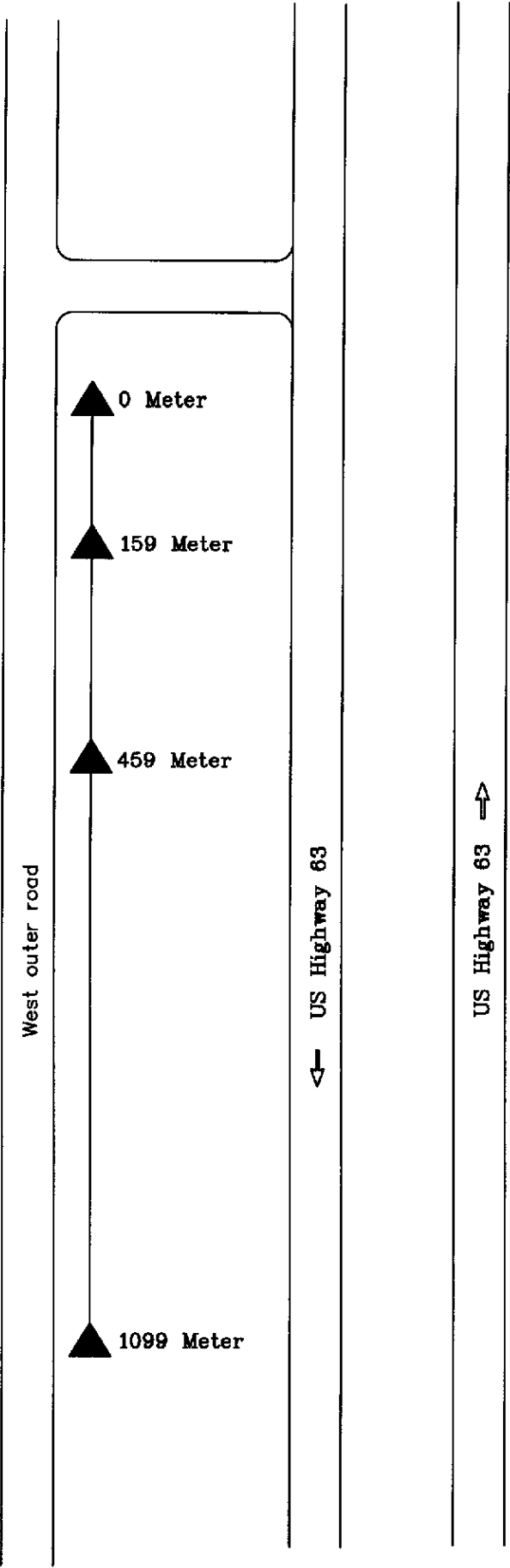| S 10 =	S 11 =	S 12 =	HI =	TEMP
H 0 =	H 0 =	H 0 =		*PRESS

Heights or delta elevations between monuments. (Elevations by Mo. Highway & Transportation Dept.)

0m = 168.03m   159m = 167.89m   459m = 167.39m   1099m = 167.19m

*Barometric pressure for EDM calibration **must be station pressure**. Do not use barometric pressure reduced to sea level.

MO 780-1848 (12-03)

Cedar City Baseline

0 Meter

159 Meter

459 Meter

West outer road

US Highway 63

US Highway 63

1099 Meter

NOT TO SCALE

DATE OF SKETCH 2003